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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/790,365   | 03/01/2004  | Carl Christian Fels  | ATOIP0110US         | 9356             |
| 7590 06/24/2008  |             |                      |                     |                  |
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| EXAMINER   |             |                      |                     |                  |
| WONG, EDNA   |             |                      |                     |                  |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
| 1795   |             |                      |                     |                  |
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| 06/24/2008   |             | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/790,365

## Applicant(s)

FELS ET AL.

## Examiner

EDNA WONG

## Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

This is in response to the Amendment dated May 2, 2008. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

***Response to Amendment***

**Specification**

- I. The abstract of the disclosure has been objected to because the abstract was more than one paragraph.

The objection of the abstract has been withdrawn in view of Applicants' amendment.

- II. The disclosure has been objected to because of minor informalities.

The objection of the disclosure has been withdrawn in view of Applicants' amendment.

**Claim Objections**

Claims **1, 5-6, 10, 15, 18 and 20** have been objected to because of minor informalities.

The objection of claims 1, 5-6, 10, 15, 18 and 20 has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 112

Claims **3, 5, 9, 12 and 18-20** have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regards to claims **3, 9, 12 and 18-20**, the rejection under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicants' amendment.

With regards to claim **5**, the rejection under 35 U.S.C. 112, second paragraph, is as applied in the Office Action dated April 18, 2008 and incorporated herein. The rejection has been maintained for the following reasons:

Claim 5

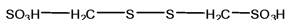
lines 1-7, recites "wherein the sulfur-containing compound is represented by the formula:



wherein X is H or an alkali metal,  $R^1$  is an alkylene group containing from 1 to about 5 carbon atoms, Y is H,  $S-R^1-SO_3X$ ,  $C(S)NR_2$ ,  $C(S)OR$ ,  $C(NH_2)NR_2$ , or a heterocyclic group, and each R" is independently H, or an alkyl group containing from 1 to about 5 carbon atoms."

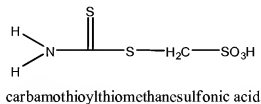
For example,

If  $Y = S-R^1-SO_3X$ ,  $R^1$  = an alkylene group containing 1 carbon atom, and  $X = H$ , formula I would be:

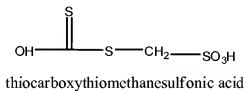


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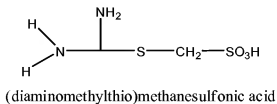
If  $Y = C(S)NR_2''$ ,  $R'' = H$ ,  $R^1 =$  an alkylene group containing 1 carbon atom, and  $X = H$ , formula I would be:



If  $Y = C(S)OR''$ ,  $R'' = H$ ,  $R^1 =$  an alkylene group containing 1 carbon atom, and  $X = H$ , formula I would be:



If  $Y = C(NH_2)NR_2''$ ,  $R'' = H$ ,  $R^1 =$  an alkylene group containing 1 carbon atom, and  $X = H$ , formula I would be:



Claim 1, lines 5-7, recites:

*"a sulfur-containing compound selected from sulfoalkylated polyethylene imines, sulfonated safranin dye, and mercapto aliphatic sulfonic acids or alkali metal salts thereof."*

The bissulfomethyl disulfide is not a sulfoalkylated polyethylene imine, a sulfonated safranin dye, a mercapto aliphatic sulfonic acid or an alkali metal salt thereof.

The carbamothioylthiomethanesulfonic acid is not a sulfoalkylated polyethylene imine, a sulfonated safranin dye, a mercapto aliphatic sulfonic acid or an alkali metal salt thereof.

The thiocarboxythiomethanesulfonic acid is not a sulfoalkylated polyethylene imine, a sulfonated safranin dye, a mercapto aliphatic sulfonic acid or an alkali metal salt thereof.

The (diaminomethylthio)methanesulfonic acid is not a sulfoalkylated polyethylene imine, a sulfonated safranin dye, a mercapto aliphatic sulfonic acid or an alkali metal salt thereof.

Furthermore, the sulfoalkylated polyethylene imines and sulfonated safranin dye do not have the formula:  $Y-S-R^1-SO_3X$  as presently claimed because there is no  $-S-R^1-$  substituent in these compounds that is required in the formula.

Thus, it is unclear how claim 5 further limits or narrows the scope of claim 1.

### ***Response to Amendment***

#### ***Claim Objections***

Claims **5** and **14** are objected to because of the following informalities:

#### Claim 5

line 5, a -- , -- (comma) should be inserted after "C(S)OR".

Claim 14

line 5, a -- , -- (comma) should be inserted after the word "atoms".

line 5, a -- , -- (comma) should be inserted after "C(S)OR".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

Claims **1-20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1

lines 5-7, recite "a sulfur-containing compound selected from sulfoalkylated polyethylene imines, sulfonated safranin dye, ***and*** mercapto aliphatic sulfonic acids ***or*** alkali metal salts thereof." The alternative expression of the Markush group is improper (MPEP § 2173.05(h)).

Furthermore, the claim language is unclear as to what the scope of the Markush group is.

Claim 10

lines 6-8, recite "a sulfur-containing compound selected from sulfoalkylated

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polyethylene imines, sulfonated safranin dye, and mercapto aliphatic sulfonic acids or alkali metal salts thereof." The alternative expression of the Markush group is improper (MPEP § 2173.05(h)).

Furthermore, the claim language is unclear as to what the scope of the Markush group is.

#### Claim 14

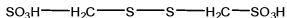
lines 1-7, recites "wherein the sulfur-containing compound is represented by the formula:



wherein X is H or an alkali metal,  $R^1$  is an alkylene group containing from 1 to about 5 carbon atoms, Y is H,  $S-R^1-SO_3X$ ,  $C(S)NR_2$ ",  $C(S)OR$ ",  $C(NH_2)NR_2$ ", or a heterocyclic group, and each  $R$ " is independently H, or an alkyl group containing from 1 to about 5 carbon atoms."

For example,

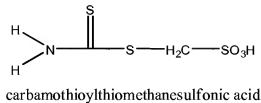
If  $Y = S-R^1-SO_3X$ ,  $R^1$  = an alkylene group containing 1 carbon atom, and  $X = H$ , formula I would be:



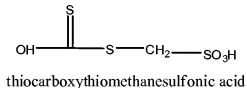
If  $Y = C(S)NR_2$ ",  $R$ " = H,  $R^1$  = an alkylene group containing 1 carbon atom, and  $X = H$ , formula I would be:



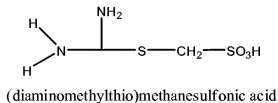
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If  $Y = C(S)OR$ ,  $R'' = H$ ,  $R^1 =$  an alkylene group containing 1 carbon atom, and  $X = H$ , formula I would be:



If  $Y = C(NH_2)NR_2$ ,  $R'' = H$ ,  $R^1 =$  an alkylene group containing 1 carbon atom, and  $X = H$ , formula I would be:



Claim 1, lines 5-7, recites:

*"a sulfur-containing compound selected from sulfoalkylated polyethylene imines, sulfonated safranin dye, and mercapto aliphatic sulfonic acids or alkali metal salts thereof."*

The bissulfomethyl disulfide is not a sulfoalkylated polyethylene imine, a

sulfonated safranin dye, a mercapto aliphatic sulfonic acid or an alkali metal salt thereof.

The carbamothioylthiomethanesulfonic acid is not a sulfoalkylated polyethylene imine, a sulfonated safranin dye, a mercapto aliphatic sulfonic acid or an alkali metal salt thereof.

The thiocarboxythiomethanesulfonic acid is not a sulfoalkylated polyethylene imine, a sulfonated safranin dye, a mercapto aliphatic sulfonic acid or an alkali metal salt thereof.

The (diaminomethylthio)methanesulfonic acid is not a sulfoalkylated polyethylene imine, a sulfonated safranin dye, a mercapto aliphatic sulfonic acid or an alkali metal salt thereof.

Furthermore, the sulfoalkylated polyethylene imines and sulfonated safranin dye do not have the formula:  $Y-S-R^1-SO_3X$  as presently claimed because there is no  $-S-R^1-$  substituent in these compounds that is required in the formula.

Thus, it is unclear how claim 5 further limits or narrows the scope of claim 1.

#### ***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter:

Claims **1-9 and 18-19** define over the prior art of record because the prior art does not teach or suggest an aqueous acidic iron phosphorus bath comprising (A) to (C) as present claimed; and a process for electrodepositing an iron-phosphorus alloy on

a conductive substrate which comprises the step of (A) providing and (B) effecting as presently claimed.

Claims **10-17 and 20** define over the prior art of record because the prior art does not teach or suggest an aqueous acidic iron phosphorus electroplating bath comprising (A) to (C) as presently claimed; and a process for electrodepositing an iron-phosphorus alloy on a conductive substrate which comprises the step of (A) providing and (B) effecting as presently claimed.

The prior art does not contain any language that teaches or suggests the above. *Uchida et al.* does no teach an aqueous acidic iron phosphorus bath comprising a sulfur-containing compound selected from sulfoalkylated polyethylene imines, sulfonated safranin dye, and mercapto aliphatic sulfonic acids or alkali metal salts thereof. Therefore, a person skilled in the art would not have been motivated to adopt the above conditions, and a prima facie case of obviousness cannot be established.

Claims 5 and 14 would be allowable if rewritten or amended to overcome the claim objection(s), set forth in this Office action.

Claims 1-20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDNA WONG whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edna Wong/  
Primary Examiner  
Art Unit 1795

EW  
June 20, 2008